Common Display Market Survey Questionnaire

Request For Information

PM HBCT Commonality Initiative

July 2009

Common Display Market Survey Questionnaire

Market Survey for a Common Display system for the PM HBCT vehicle fleet.

GENERAL INFORMATION: The U.S. Government appreciates the time and effort taken to respond to this survey. This is a market survey requesting information in support of the following performance requirement. No contract will be awarded from this announcement. This is not a Request for Proposal (RFP) or an announcement of a forthcoming solicitation. Also, it is not a request seeking contractors interested in being placed on a solicitation mailing list. Response to this questionnaire is voluntary and no reimbursement will be made for any costs associated with providing information in response to this market survey and any follow-on information requests. Data submitted in response to this market survey will not be returned. No solicitation document exists at this time, and calls requesting a solicitation will not be returned.

The Item we are looking for will be used to drive to a common tactical computing display for the combat tracked and wheeled platforms within the Program Manager Office of Heavy Brigade Combat Team (PM HBCT). These vehicles include: Abrams Tank (M1A1, M1A2 SEP v2, AED); Bradley FOV (M2/M3A2 ODS, M2/M3 A3, M7 BFIST, A3 BFIST); Paladin, PIM, FAASV; M113 FOV Knight and Armored Knight. Additional U.S. Army vehicles such as Stryker, HMMWV, MRAP, etc. may consider the products for inclusion in their configured platforms.

The Item will support vehicle software applications as well as battle command systems. Currently the battle command system is Force XXI Battle Command, Brigade and Below (FBCB2) supporting both EPLRS and Blue Force Tracking (BFT) units. Additionally, the fire support community operates in AFATDS and FOS applications. The system will also be required for Vehicle Health Management System (VHMS), which allows the user to dismount the system to conduct vehicle maintenance with IETMs and provide vehicle health and prognostic data to the logistics support elements.

RELEASE NOTICE. The offeror agrees that the data contained below can be disclosed to the vehicle prime contractors and/or PEO GCS, PEO CS & CSS, and TARDEC support contractors in furtherance of the Government's evaluation and planning.

Yes _____ Signature: _____

No _____ Signature: _____

If the answer is No, for the entire questionnaire or for only parts of the questionnaire, the offeror must clearly mark the responses and data which are not to be released by annotating the response or responses with "Proprietary Data" and/or "Competition Sensitive"

INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE:

1. Review the Critical Item Development Specification (CIDS) accompanying this questionnaire.
    a. Provide Questions, Points for clarification, Recommendations, etc on the CIDS document.
    b. Assess the ability to meet the requirements in the CIDS document.
2. Provide answers to the questions provided in this document.
3. If you cannot answer a question, please indicate "No response."
4. If a response will satisfy another question, state "See Response to question #, in Technology area X."
5. Include relevant sales media and product manuals.
6. Do not reply with proprietary information.
7. Add additional pages as necessary.
8. Return this page with endorsement by an appropriate company representative possessing authority to endorse the release notice and submit the requested information to the US Government.

Common Display Market Survey Questionnaire

Instructions

Enter information into the boxed area below each question.

Contact Information

Point of Contact:

Title:

Organization (Company / Division):

Mailing Address:

Phone:

Fax:

E-Mail:

Company Website:

General Supplier Information

Question 1: Describe the primary business the company is engaged in:

Question 2: Is the product you are proposing currently in production, if yes, how long?

Question 3: Number of years in this area of business:

Question 4: If your product were to be selected for procurement actions, what components or items would be considered proprietary in nature.

Common Display Market Survey Questionnaire

Common Display Specification Review

- Review the Common Display Specification
- Provide Questions, Points for clarification, Recommendations, etc on the CIDS document.
- Describe your ability to meet the requirements described in the Common Display Specification

Common Display Market Survey Questionnaire

Display Control Technology area driving requirements

- Processing capability
- Input: Analog and Digital under consideration
- Input voltage: 28 Vdc
- Display: Color (10 - 21inch being considered), Night Vision Goggle compatible, daylight readable
- Touch (single or multi touch being considered)
- Bezel buttons, USB feedthrough connections
- Blackout capability (Visible, IR)
- Minimum display required is 120 ppi (pixels per inch) with 24 bit color
- High Temperature requirements: 71 C (160 F) minimum

Technical Performance Questions (please answer with regards to where the offering will be in the next 2 years)

Question 1: Describe the display / backlighting / touch technologies.

Question 2: What is the display viewable size?

Question 3: What is the display resolution? What is the touch resolution?

Question 4: Is the display multi-touch capable.

Question 5: What is the warm-up time from -40 C?

Question 6: Describe the thermal architecture.

Question 7: What are the viewing angles?

Question 8: What other military programs is the display being used on?

Question 9: What is the impact resistance of the display screen?

Question 10: Describe the touch screen optical degradation.

Question 11: What are the brightness and contrast ratio capabilities?

Question 12: What is the processor chipset?

Question 13: What is the processor performance?

Common Display Market Survey Questionnaire

Question 14: What is the memory capacity of your display?

Question 15: What operating system?

Question 16: How is the software updated?

Question 17: Are video overlays available?

Question 18: What is the boot up time?

Question 19: What inputs does the display have?

Question 20: What Display technologies are you focusing on in the next 2 -5 years?

Question 21: What display lighting technologies are you focusing on in the next 2 -5 years?

Question 22: What is your technical approach to sunlight readability?

Question 23: What is your technical approach to night vision compatibility?

Question 24: What are the limitations of your display and lighting technologies?

Question 25: What touch screen technologies are you focusing on in the next 2 - 5 years?

Question 26: What user input device technologies are you considering in the next 2 - 5 years, including voice?

Question 27: What is your environmental sealing approach?

Question 28: Describe the wireless connectivity option?

Question 29: Describe the batteries and battery life?

Question 30: What base material are you focusing on in the next 2-5 years?

Question 31: What is your EMC approach?

Common Display Market Survey Questionnaire

Question 32: What battery technologies are you are you focusing on in the next 2 - 5 years?

Question 33: What is the charging time/profile of your battery technologies?

Question 34: Describe your bezel switching abilities to include quantity.

Question 35: Discuss your ability to control hard and soft keys.

Question 36: Discuss any unique aspects you may want to present.

Common Display Market Survey Questionnaire

Graphics Technology area driving requirements

- Minimum performance: 3DMark 2006 score of >1800
  1. Tested with the following perimeters: Res - 1024X768, Anti-Aliasing - off, Anisotropic level - 1, OS - Windows XP (sp2), Processor - Intel L7400 (1.5ghz), Memory - 2MB, Bus - PCIe, 3DMark 2006 version number 1.1.0
  2. http://www.futuremark.com/products/3dmark06/

Technical Performance Questions (please answer with regards to where the offering will be in the next 2 years)

Question 1: What interfaces other than the high-speed data bus does the potential supplier's SBC provide (e.g., , RS-170, SVGA, Digital Video (DVI, HDMI, etc.)?

Question 2: What form factor is the Graphics Card (e.g., PCI, VME)?

Question 3: How much RAM/ROM is on the Graphics Card?

Question 4: What is the operating system? Can it handle more than one operating system?

Question 5: Is the device used on any Military programs?

Question 6: Describe any growth capability?

Question 7: What are the resolution, color depth, and refresh rate capabilities?

Question 8: How many unique outputs can it drive?

Question 9: What graphics processor architectures / technologies are you focusing on / developing in the next 2-5 years?

Question 10: What low power circuit technologies are you focusing on / developing in the next 2-5 years?

Question 11: What advanced software are you focusing on / developing in the next 2-5 years?

Question 12: What Graphic Card cooling technologies are you focusing on in the next 2-5 years?

Question 13: What backplane SBC interface technologies are you focusing on in the next 2-5 years?

Question 14: What technology standards and specification-development organizations are you supporting / developing?

Common Display Market Survey Questionnaire

Question 15: Discuss any unique aspects you may want to present.

Common Display Market Survey Questionnaire

Wireless Technology area driving requirements

- Input Voltage: 28Vdc or 120Vac configurations are under consideration
- Range: minimum performance equivalent to 802.11g
- Encryption: Type 1 Encrypted as well as non-encrypted are under consideration

Technical Performance Questions (please answer with regards to where the offering will be in the next 2 years)

Question 1: What is the type of encryption?

Question 2: What is the bandwidth?

Question 3: What protocols are supported?

Question 4: What is the range?

Question 5: What are current military applications, and when was the roll out date?

Question 6: Discuss any unique aspects you may want to present.

Common Display Market Survey Questionnaire

Storage Technology area driving requirements

- Configuration: Fixed, removable, rotating, and non-rotating are under consideration
- Total Storage Size: 200GB and higher (single or multiple devices under consideration)
- Additional Functionality: Built-in compression/decompression and data management under consideration

Technical Performance Questions (please answer with regards to where the offering will be in the next 2 years)

Question 1: What is the storage size?

Question 2: What is the type of storage you will use?

Question 3: What is the access time?

Question 4: What are the throughput rates?

Question 5: What are the processing capabilities (i.e. compression / decompression)?

Question 6: What is the power up time from -40 degrees C. 0 degrees C? 70 degrees C?

Question 7: What is the time until fully operational after turn on?

Question 8: What is the shut down time to secure all data after turn off or loss of power?

Question 9: Describe the built-in diagnostic capabilities.

Question 10: What are the zeroize capabilities?

Question 11: What are the recording capabilities?

Question 13: Describe the pentaplex capabilities.

Question 14: What are the maximum numbers of inputs?

Question 15: Does the system use compression? What types of compression are being considered in for next 2-5 years?

Question 16: Describe the storage medium?

Common Display Market Survey Questionnaire

Question 17: Describe the security aspects.

Question 18: What communication formats and protocols are used?

Question 19: Is the storage medium removable?

Question 20: What memory technology (ie: rotating, solid state) are you focusing on / developing in the next 2-5 years?

Question 21: What compression technologies are you focusing on / developing in the next 2-5 years?

Question 22: Discuss any unique aspects you may want to present.

Common Display Market Survey Questionnaire

Embedded Training Technology area driving requirements

- Connection between simulations

Technical Performance Questions (please answer with regards to where the offering will be in the next 2 years)

Question 1: What is the throughput?

Question 2: Describe the version management.

Question 3: Describe the RTI (Real Time Interface) management.

Question 4: Discuss any unique aspects you may want to present.

Common Display Market Survey Questionnaire

IA Technology area driving requirements

- Cross Domain Guards
- Data Diodes
- High Assurance Filters
- Data separation software on a secure software kernel. (Assumes some SW development will have to be done on the part of the supplier)
- Software Security
- Network Security
- Secure tamper prevention and detection
- Intrusion detection
- KVM Switches
- Firewalls

Technical Performance Questions (please answer with regards to where the offering will be in the next 2 years)

Question 1: Describe the operation of your product?

Question 2: Has the product received common criteria evaluation, and against what scheme?

Question 3: Has the product been certified? Currently under going certification?

Question 4: Are you CMMI Level 3 or greater in SW?

Question 5: What experience do you have with separation kernels?

Question 6: What O/S can your system run on?

Question 7: How much embedded S/W development experience do you have?

Question 8: Do you have knowledge of government IA requirements?

Question 9: Size of S/W development organization?

Question 10: Discuss any unique aspects you may want to present.

Common Display Market Survey Questionnaire

Video Switching Technology area driving requirements

- 26 video streams (13 color, 13 monochrome), 8 displays
- Any video to any display
- One video network is near-real-time
- One video network can withstand some lag
- Most modern video formats / bus types under consideration

Technical Performance Questions (please answer with regards to where the offering will be in the next 2 years)

Question 1: What is the format?

Question 2: What is the bandwidth?

Question 3: What is the switching speed?

Question 4: What are the maximum numbers of inputs? What are the types of inputs?

Question 5: What video network architectures are you focusing on / developing in the next 2-5 years?

Question 6: What optical video networking technologies are you focusing on /developing in the next 2-5 years?

Question 7: What video network security technologies are you focusing on / developing in the next 2-5 years?

Question 8: What video network copper and /or optical cabling / connector technologies are you focusing on / developing in the next 2-5 years?

Question 9: What video media converter technologies are you focusing on / developing in the next 2-5 years?

Question 10: What video transceiver technologies / protocols are you focusing on / developing in the next 2-5 years?

Question 11: What technology standards and specification-development organizations are you supporting / developing?

Question 12: What video network architectures are you focusing on / developing in the next 2-5 years?

Question 13: What optical video networking technologies are you focusing on /developing in the next 2-5 years?

Question 14: What video network security technologies are you focusing on / developing in the next 2-5 years?

Common Display Market Survey Questionnaire

Question 15: What video network copper and /or optical cabling / connector technologies are you focusing on / developing in the next 2-5 years?

Question 16: What video media converter technologies are you focusing on / developing in the next 2-5 years?

Question 17: What video transceiver technologies / protocols are you focusing on / developing in the next 2-5 years?

Question 18: What technology standards and specification-development organizations are you supporting / developing?

Question 19: Discuss any unique aspects you may want to present.

Common Display Market Survey Questionnaire

General Technical Questions

Question 1: Attach or embed top-level Schematic Block Diagrams with associated interfaces.

Question 2: Estimate the SWaP-C (Size (dimensions), Weight, Power, Cooling (heat rejection)) of your offering, at the Line Replaceable Unit level.

Question 3: Estimate the Technology Readiness of your offering, using the reference table below. Explain and justify how your product meets the Technology Readiness Level.

TRL definition reference:

Technology Readiness Levels Summary

TRL 1 Basic principles observed and reported
TRL 2 Technology concept and/or application formulated
TRL 3 Analytical and experimental critical function and/or characteristic proof-of-concept
TRL 4 Component and/or breadboard validation in laboratory environment
TRL 5 Component and/or breadboard validation in relevant environment
TRL 6 System/subsystem model or prototype demonstration in a relevant environment
TRL 7 System prototype demonstration in an operational environment
TRL 8 Actual system completed and qualified through test and demonstration
TRL 9 Actual system proven through successful mission operations

Question 4: Have you tested your product to any standards (i.e. MIL-STD-810, CE, SAE, ANSI, etc.)? Please elaborate.

Question 5: Describe known "performance challenges" at the extremes of any of the environmental conditions as outlined in the Common Display Specification.

Question 6: Provide the associated math model using the block diagram in Question 1, with ***reliability*** predictions for the components of their subsystem and overall subsystem prediction.

Question 7: Provide an assessment of your subsystem/component with respect to its ***commonality***.

Question 8: Provide an assessment of your subsystem/component with respect to its ***maintainability***

Question 9: If applicable, describe your approach and past history with ***obsolescence*** issues with piece parts / components.

Question 10: Provide an assessment of your subsystem/component with respect to ***Diagnostics/Prognostics.***

Question 11: Does the product contain any material or technologies from a foreign supplier?

Common Display Market Survey Questionnaire

Question 12: Provide an assessment or overview of your ESS process.

Question 13: Describe your approach to in-house qualification testing to include test facilities/fixtures.

Common Display Market Survey Questionnaire

Cost Questions

Question 1: If your product is below TRL 6, estimate the technology development cost and schedule to achieve a TRL of 6. Use 4th Quarter 2009 dollars.

Question 2: Estimate the production costs for 500-1000 vehicles / year, for 7 years. Use 4th Quarter 2009 dollars.

End of Questions.

Thank you for your participation.

Send responses via Email (attaching the Questionnaire file) or U.S. Mail (3 CD ROMs), to the address below. NO PROPRIETARY DATA.

ATTN:
Mr. Anthony Scalise, Procurement Analyst
US ARMY TACOM, WARREN
6501 EAST ELEVEN MILE ROAD
WARREN, MI 48397
BLDG. 229, 4TH FLOOR, MS 506
EMAIL: anthony.j.scalise@us.army.mil

Common Display Market Survey Questionnaire

Definitions

Reliability:

Probability of success for an intended function or functions at a given confidence level over specific environmental conditions at a prescribed operating duration.

Examples/Discussion: Reliability predictions can come from:

1. Field experience (if available - expressed as mean miles between failure or mean time between failures, or the inverse which is a failure rate.
2. Testing (life cycle testing involving durability cycles in the principle environment - temperature cycling, humidity, sand/salt, etc.)
3. Modeling, which can be done through a variety of techniques (such as MIL217F for electrical & electrical/magnetic components, or some other mechanical component level model)

Commonality:

Commonality may refer to common hardware attributes or characteristics. Hardware commonality applies to material or systems in three ways: (a) possessing like and interchangeable characteristics enabling each to be utilized, or operated and maintained by personnel trained on the others without additional specialized training; (b) having interchangeable repair parts and/or components; (c) applying to items interchangeably equivalent without adjustment; (d) used on existing military or commercial applications. Commonality also pertains to equipment or systems that have the quality of one entity possessing like and interchangeable parts with another equipment or system entity.

Example/Discussion: Lack of commonality severely impacts availability, maintainability, and other 'ilities addressed in this questionnaire. For example, it different variants of the same platform were to all require different wheels and tires, the ability to swap out in the field or simply have replacement subsystems/components at the repair station would be rendered most difficult.

In automotive manufacturing many vehicles are assembled on a "platform" basis with many common components across different automotive divisions. For example, the SUV frame is common to the GMC Acadia, Buck Envoy and Saturn Outlook, which significantly reduces manufacturing costs.

Maintainability:

Maintainability is the ease with which an item will be restored to a specified condition within a given period of time, when the maintenance is performed in accordance with prescribed procedures and resources.

Example/Discussion: Items for consideration in assessing maintainability include the need for special tools, maintenance tasks requiring multiple personnel, or the requirement for extensive training.

Obsolescence:

Obsolescence occurs when a subsystem or component is no longer available as a unit and no drop in replacement is available for internal parts.

Common Display Market Survey Questionnaire

Example/Discussion: Since companies prefer to maintain their consumer base, they have a strong incentive to support products for several years after their release.

Diagnostics:

Definition: **Diagnostics** is the process of determining the state of or capability of a component to perform its function(s). **Prognostics** is an engineering discipline focused on predicting the future condition of a component and/or system of components.

Example/Discussion: **Diagnostics** can be procedures and systems which detect and isolate a malfunction or mistake in a communications device, network, or system. Potential uses for **prognostics** include estimation of remaining useful life and condition-based maintenance.